

Erratum for *Denjoy Minimal Sets Are Far From Affine*

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Abstract. Theorem 2 of [1] is corrected by adding a C^2 bound to the hypotheses.

Consider the circle \mathbf{R}/\mathbf{Z} with coordinates $[0, 1)$. Let $L \subset [0, 1)$ be a compact interval and for $k \geq 2$ let $\mathcal{I} = \{I_1, \dots, I_k\}$ be a collection of pairwise disjoint compact intervals with union $I \subset L$. Define $\mathcal{S}^r(\mathcal{I}, L)$ to be the set of C^r functions $S : I \rightarrow L$ such that $|S'| > 1$ on I , and for each $j = 1, \dots, k$, $S[I_j] = L$. For such S , define its *nonlinearity* $\mathcal{N}(S) \equiv \max_j \sup\{\log(S'(x)/S'(y)) : x, y \in I_j\}$.

Any $S \in \mathcal{S}^r(\mathcal{I}, L)$ has a unique maximal invariant (Cantor) set $C_S = \{x \in I : S^n(x) \in I \text{ for all } n > 0\}$. A Cantor set is C^1 -minimal if it is the minimal set of some C^1 diffeomorphism of the circle. The following appears as Theorem 2 in [1].

THEOREM 1. *Let I_1, \dots, I_k, L be compact intervals as above. Then there exists $\epsilon > 0$ (depending only on $\{|I_j|/|L| : j = 1, \dots, k\}$) such that if $S \in \mathcal{S}^2(\mathcal{I}, L)$ and $\mathcal{N}(S) < \epsilon$ then C_S is not C^1 -minimal.*

A. Portela correctly points out that the proof in [1] only proves the following slightly weaker statement:

THEOREM 2. *Let I_1, \dots, I_k, L be compact intervals as above, and let $M > 0$. Then there exists $\epsilon > 0$ (depending only on $\{|I_j|/|L| : j = 1, \dots, k\}$ and M) such that if $S \in \mathcal{S}^2(\mathcal{I}, L)$, $|S''| < M$, and $\mathcal{N}(S) < \epsilon$ then C_S is not C^1 -minimal.*

It still follows immediately that C^1 -minimal Cantor sets are not C^2 -nearly affine:

COROLLARY 1. *Let I_1, \dots, I_k, L be given as above. Then there exists $\epsilon > 0$ such that for all $A, S \in \mathcal{S}^r(\mathcal{I}, L)$, if A is locally affine and $\|S - A\|_{C^2} < \epsilon$, then C_S is not C^1 -minimal.*

REFERENCES

- [1] A. N. Kercheval. *Denjoy minimal sets are far from affine*. *Ergodic Theory and Dynamical Systems*, **22**, 2002, 1803–1812.